

**LISTING OF CLAIMS**

Claims 1-29 (Canceled)

30. (Previously presented) A method of producing a transgenic mouse comprising a homozygous disruption in a melanocyte stimulating hormone receptor gene represented by SEQ ID NO: 19, the method comprising:

- (a) introducing a targeting construct targeting the melanocyte stimulating hormone receptor gene into a murine embryonic stem cell;
- (b) selecting for the embryonic stem cell which has undergone homologous recombination;
- (c) introducing the embryonic stem cell into a blastocyst;
- (d) implanting the resulting blastocyst into a pseudopregnant mouse, wherein the resulting mouse gives birth to a chimeric mouse;
- (e) breeding the chimeric mouse to produce a transgenic mouse comprising a heterozygous disruption in the melanocyte stimulating hormone receptor gene; and
- (f) breeding the transgenic mouse comprising the heterozygous disruption to produce the transgenic mouse comprising a homozygous disruption in the melanocyte stimulating hormone receptor gene,

wherein the transgenic mouse when homozygous for the disruption lacks production of functional protein encoded by the melanocyte stimulating hormone receptor gene and the transgenic mouse exhibits hypoactivity.

31. (Canceled)

32. (Previously presented) A transgenic mouse comprising a disruption in a melanocyte stimulating hormone receptor gene represented by SEQ ID NO: 19, wherein where the disruption is homozygous the transgenic mouse lacks production of functional protein encoded by the melanocyte stimulating hormone receptor gene and the transgenic mouse exhibits hypoactivity.

33. (Previously presented) A cell or tissue isolated from the transgenic mouse of claim 32.

Claims 34-35 (Canceled)